MX-1004PF

Professional Quad-View Video Processor

User Manual

Full HD 1080 | WUXGA x1920 1200 | dvi digital visual interface

Safety and Notice

The **MX-1004PF** **Professional Quad-View Video Processor** has been tested for conformity to safety regulations and requirements, and has been certified for international use. However, like all electronic equipments, the **MX-1004PF** should be used with care. Please read and follow the safety instructions to protect yourself from possible injury and to minimize the risk of damage to the unit.

● Follow all instructions and warnings marked on this unit.

● Do not attempt to service this unit yourself, except where explained in this manual.

● Provide proper ventilation and air circulation and do not use near water.

● Keep objects that might damage the device and assure that the placement of this unit is on a stable surface.

● Use only the power adapter and power cords and connection cables designed for this unit.

● Do not use liquid or aerosol cleaners to clean this unit. Always unplug the power to the device before cleaning.


TABLE OF CONTENTS

INTRODUCTION

The **MX-1004PF** **Professional Quad-View Video Processor** is an advanced video processor for multimedia presentations. It is an ideal solution for applications where up to four video signals must be displayed on a single display. It supports up to 16 video inputs, of which four can be outputted simultaneously with the desired display layout through software control. The advanced video processor allows you to manipulate output images, wherever positions and whatever sizes you want for viewing two computers or two video signals or a combination.

The embedded scaler converts signals from input sources to match the native resolution of monitors, flat panel displays, projectors as well as user-selectable output settings up to WUXGA (1920x1200). Dual outputs are provided in both analog (VGA) and digital (DVI) format, one is connected to remote display and the other is connected to on-site display for real time monitoring.
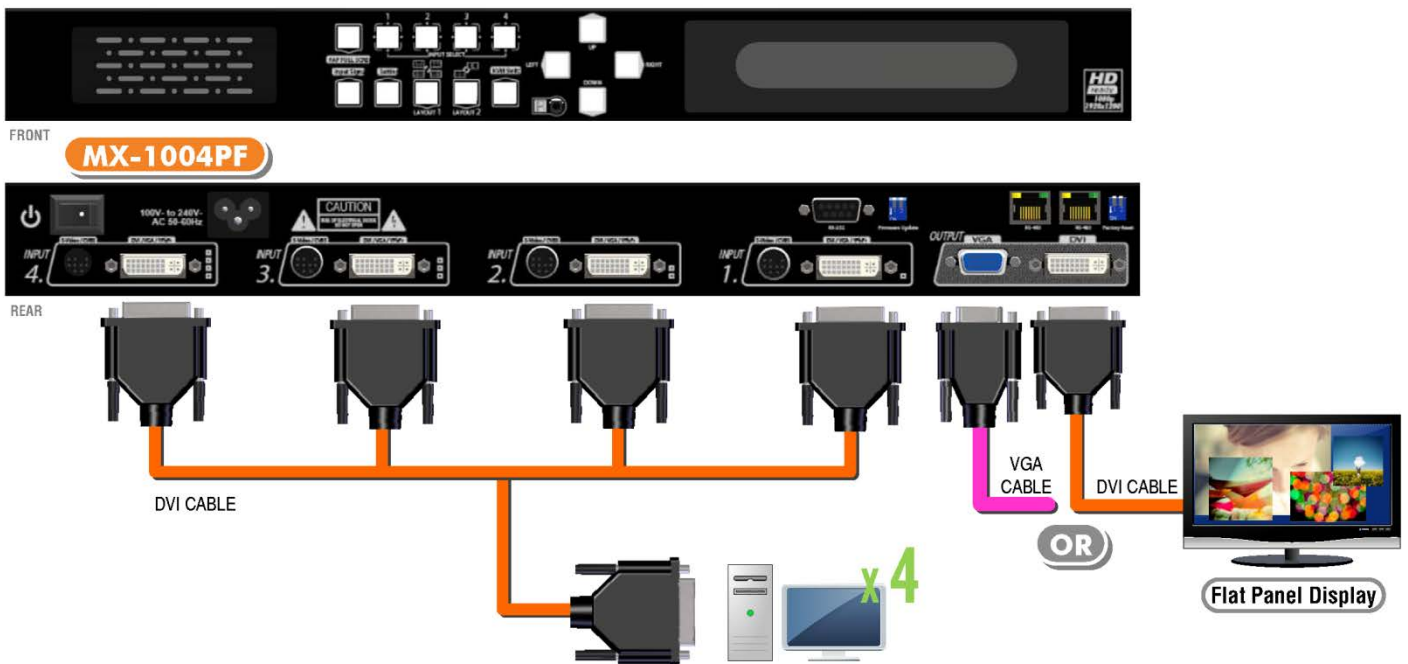
FEATURES

- Support six most popular video formats: four VGA, four DVI/HDMI, four component, four S-Video and four composite inputs!
- Input resolution support from 640x480 to 1920x1200, interlaced or progressive.
- DVI 1.0
- Support HDCP 1.1
- Dual outputs (DVI / VGA), 640x480 to 1920x1200.
- Video background available.
- Adjustable size& position through software.
- Dynamic transition for video sizing and positioning
- Titles, borders and colored backgrounds.
- Resize, position, zoom& pan and blend output video.
- Image parameters and layouts are automatically saved in flash memory and can be recalled for later use.
- Several Image parameters and layouts can be saved in computers and can be loaded for later use.
- Video parameters adjustable (brightness, contrast, color temperature, etc.).
- User-selectable output settings, up to 1920x1200.
- Perfectly as a video screen splitter, a video converter and a video switcher.
- Firmware upgradable for support of new features and technology enhancements.
- Software control through RS-232/RS-485 over Cat-5.
- Can be cascaded to obtain more images using RS-485 control path
- Control protocol available for customer proprietary design
- 1U size.

PACKAGE CONTENTS

- 1x MX-1004PF
- 4x VGA to component breakout cable
- 4x DVI to VGA adapter
- 2x 1U rack mounting-ear
- 1x UL AC power cord
- 1x IR Remote
- 4x DVI to DVI & VGA breakout cable
- 4x S-Vedio & Composite breakout cable
- 1x USB to RS-232 cable
- 1x Installation software CD
- 1x User manual

SPECIFICATIONS

Model Name		MX-1004PF
Technical		
Role of usage		Multiplexer / video processor
Dual output support		Yes [DVI & VGA]
Background video input		Yes
HDCP compliance		Yes
Video bandwidth		DVI/HDMI[Single-link 4.95Gbps] VGA[165MHz] Component [30MHz] Composite [13.5MHz] S-Video [13.5MHz]
Video support		480i / 480p / 720p / 1080i / 1080p60 / 1920x1200@75 / 1600x1200@60
Audio support		No
Control		RS-232 and RS-485
Embedded video mixer		Yes
Cascadable		Yes
Input TMDS signal		1.2 Volts [peak-to-peak]
ESD protection		Human body model — ±19kV [air-gap discharge] & ±12kV [contact discharge]
PCB stack-up		6-layer board [impedance control — differential 100Ω; single 50Ω]
Input		4x VGA + 4x DVI + 4x HDMI + 4x component + 4x composite + 4x S-Vudeo + 1x RS-232 + 1x RS-485
Output		1x DVI + 1x VGA
DVI connector		DVI-I [femal,29-pin]
S-Video connector		9 pin
VGA connector		HD-15 [15-pin D-sub female]
RS-232 connector		DE-9 [9-pin D-sub female]
RCA connector		75Ω female
RJ-45 connector		WE/SS 8P8C with 2 LED indicators
Mechanical		
Housing		Metal enclosure
Dimensions [L x W x H]	Model	300 x 440 x 44mm [11.8"x1'5.3"x1.7"]
	Package	310 x 525 x 155mm [1'0.2"x1'8.7"x6.1"]
	Carton	570 x 580 x 260m [1'10"x1'10.9"x10.2"]
Weight	Model	2.9kg [6.4 lbs]
	Package	5kg [11.1 lbs]
Fixedness		1RU rack-mount with ears
Power supply		AC Power 100-240V
Power consumption		35 Watts [max]
Operation temperature		0~40°C [32~104°F]
Storage temperature		-20~60°C [-4~140°F]
Relative humidity		20~90% RH [no condensation]

PANEL DESCRIPTIONS

The MX-1004PF has 16 inputs and accepts both graphics and video signals, which come from computers (DVI or VGA), composite, and component video sources respectively. You can pick up four of the ten inputs and then display four of them simultaneously on the same screen. Figure 2 shows the rear panel connectors of a MX-1004PF and Table 1 illustrates how you can connect video devices and display to the MX-1004PF.

Rear Panel

* Turn on the MX-1004PF then switch the circled DIP switche simultaneously up and down to factory default mode.

*These IO ports support various resolution from 640x480 up to 1920x1200, for more detail of the supported modes, please refer to the Appendix – Supported Resolution.

TABLE 1: I/O CONNECTORS

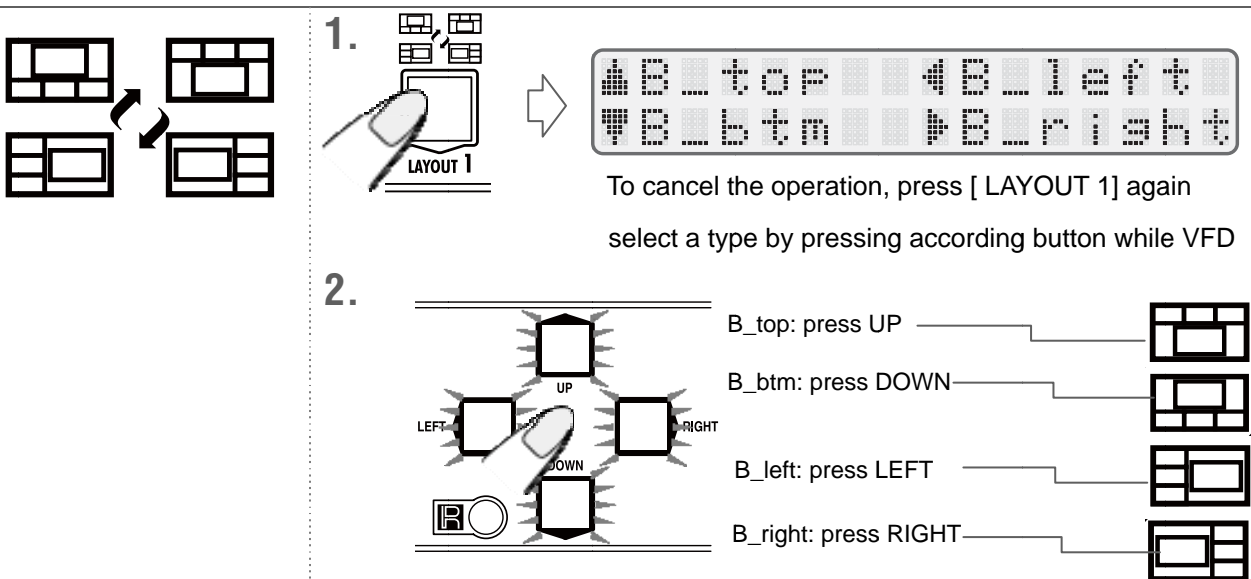| Input Connector	Video Source
DVI-x YPbPr-x/VGA-x CVBS-x S-Video-x [x = 1~4]	[1] DVI
	[2] VGA — with a DVI-to-VGA adapter **(DVA01)**
	[3] Component (YPbPr) — with a DVI-to-VGA adapter **(DVA01)** and a VGA-to-component breakout cable **(VYPBA01)**
	[4] CVBS
	[5] S-Video
Output Connector	**Display**
DVI-I OUT	[1] DVI display
	[2] VGA display — with a DVI-to-VGA adapter **(DVA01)**
	[3] 1x DVI display + 1x VGA display — with a DVI to DVI&VGA breakout cable **(DDVY01)**
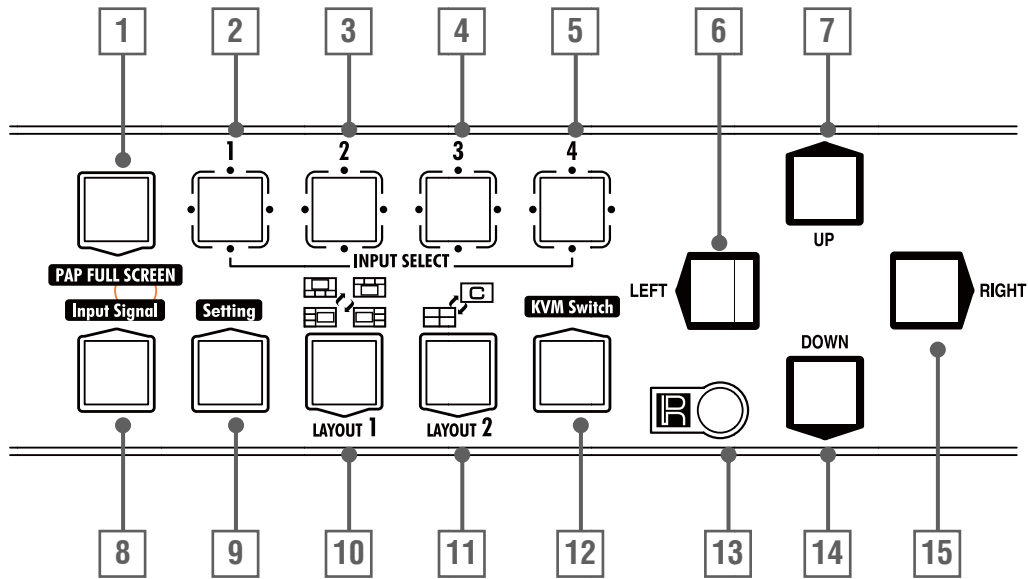
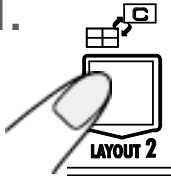|			
1	PAP Full Screen	11	Function key: Layout 2
2 3 4 5	Input Select	12	Function key: N/A
8	Function key: Input Signal	13	Infrared Sensor
9	Function key: Setting	6 7 14 15	Navigation
10	Function key: Layout 1		

Selecting PIP Window Arrangement
[Main Window with 3 triple sub-windows aside]

You can choose one of the following window arrangement from 4 presets

1.

```
↑B_top    ◀B_left
▼B_btm    ▶B_right
```

To cancel the operation, press [LAYOUT 1] again

select a type by pressing according button while VFD

2.

B_top: press UP

B_btm: press DOWN

B_left: press LEFT

B_right: press RIGHT

[Quad Windows in crisscross + 3 user-defined custom

1.

To cancel the operation, press [LAYOUT 2] again

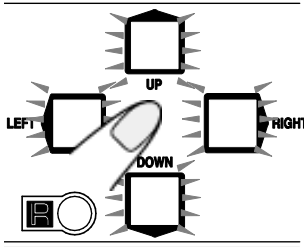**2.** select a type by pressing according button while VFD

display prompts
B_top : press UP

B_btm : press DOWN

B_left : press LEFT

B_right : press RIGHT

Menu

| Layout Mode	Output Format	Input Signal	Color Setting	System Setting
Cross Layout	800x600 60Hz	DVI	Brightness	Temperature Type
Bar-Top	1024x768 60Hz	VGA/YUV	Contrast	FW Version
Bar-bottom	1280x720 60Hz	S-Video	Saturation	
Bar-Left	1280x1024 60Hz	CVBS	Hue	
Bar-Right	1366x768 60Hz		Red	
Custom Layout1	1440x768 60Hz		Green	
Custom Layout2	1440x1050 60Hz		Blue	
Custom Layout3	1600x1200 60Hz			
Custom Layout4	1920x1080 60Hz			
Custom Layout5	1920x1200 60Hz			
Custom Layout6				
Custom Layout7				
Custom Layout8				

IR REMOTE CONTROL

MX-1004PF ships with a compact remote control that allows for direct access to most commands used to control the video processor.

IR Remote Button Define		
Power Button	Power ON/OFF the device	
Cross-Layout	Set PAP layout to default layout (cross type)	
Side-Bar Layout	Set PAP layout to default layout (Side-Bar type)	
Input CH2	Set channel 2 to be focus channel	
Right Button	Menu button	
Input CH4	Set channel 4 to be focus channel	
Up Button	Menu button	
PAP Full Screen	Move to the left titles	
Down Button	Menu button	
Input CH1	Set channel 1 to be focus channel	
Left Button	Menu button	
Input CH3	Set channel 3 to be focus channel	
Custom Layout4	Set PAP layout to custom position and size	
Custom Layout8	Set PAP layout to custom position and size	
Custom Layout3	Set PAP layout to custom position and size	
Custom Layout7	Set PAP layout to custom position and size	
Custom Layout2	Set PAP layout to custom position and size	
Custom Layout6	Set PAP layout to custom position and size	
Custom Layout1	Set PAP layout to custom position and size	
Custom Layout5	Set PAP layout to custom position and size	
CH4 Source	Change channel 4 input source	
CH3 Source	Change channel 3 input source	
CH2 Source	Change channel 2 input source	
CH1 Source	Change channel 1 input source	
D Button	Reserve	
C Button	Reserve	
B Button	Reserve	
A Button	Reserve	
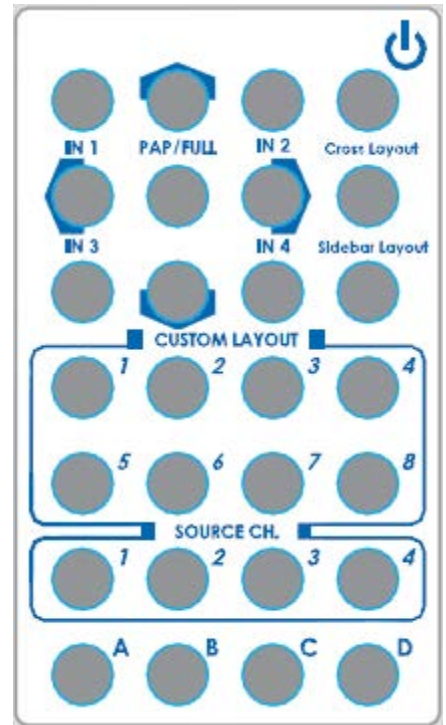
Safety Precautions

1. To prevent fire or shock hazards, do not expose this device to rain or moisture.

2. When connecting other products such as DVD players, and personal computers, you should turn off the power of this product for protection against electric shocks.

3. The product should be placed more than one foot away from heat sources such as radiators, heat registers, stoves, and other products (including amplifiers) that produce heat. In addition, do not cover any material or devices on the top of the device.

4. Do not use immediately after moving from a low temperature to high temperature, as this causes condensation,

5. Do not place this product on an unstable cart, stand, or table. The product may fall, causing serious injury to a child or adult and serious damage to the product.

6. Unplug this product from the wall outlet before cleaning. Do not use liquid cleaners or aerosol cleaners. Use a damp cloth for cleaning.

7. Do not allow the same still picture to be projected for a long time or an abnormally bright video picture to be projected. The video image could be burned in to the display device.

Installation Procedures

Unpacking

Remove the MX-1004PF from the shipping container and examine it for any signs of shipping damage or missing items (check with package contents above). All shipping items should be saved if the product is to be moved or returned for service. Shipping unit back to dealers for service not in the original box may result in voiding warranty or additional cost.

Placement

The unit uses convection to cool. A fan is not needed, so do not block the sides of this device or stack another device on the top or bottom of the MX-1004PF.

Connections

We recommend the highest quality cables for both input and output connections.

1. Switch off the MX-1004PF and all devices that you want to connect.

2. Connect a monitor, a projector or other displays that comes with DVI / VGA inputs by using 1 male-to-male DVI (VGA) cable to MX-1004PF DVI output (you can connect 2 displays equipped with DVI and VGA respectively by a DVI to DVI&VGA breakout cable **(DDVY01)**).

3. Plug in DVI to DVI&VGA breakout cable **(DDVY01)** to DVI-YPbPr-VGA-x and plug in VGA to component adapter **(VYPBA01)** to the VGA connector of the breakout cable.

4. Connect a device equipped S-Video & CVBS through S-Video & CVBS breakout cable.

5. Connect a device equipped with DVI output (such as PC) to the DVI connector of the breakout cable.

6. Connect a device equipped with component video output (YPbPr such as DVD player or camera) to the 3-RCA jack of the **VYPBA01.**

7. Connect a device equipped with VGA output (such as laptop) to the VGA connector of MX-1004PF.

8. Connect a device equipped with composite video output to composite input of the MX-1004PF.

9. Connect your computer with the MX-1004PF by a 9-pin RS-232 cable and then install the software.

10. Plug in AD power cord into AC power socket.

11. Execute the control software and establish the connection between PC/Laptop and MX-1004PF.

12. For detailed software control operation, please refer to the software instruction section.

System Requirement and Precautions

1. The MX-1004PF provides a software control program, Quartet, which runs under Microsoft Windows 98, 2000, XP, Vista through the interface of RS-232 serial control.

2. Before you click on the icon of the software, make sure you have secured the connection between your computer COM port and the MX-1004PF and switched on the MX-1004PF with green LED light.

Instruction of Software Connection

1. Power up the MX-1004PF and you can see VFD on the front panel blink. Make sure the serial port mode is right for your setting. RS-232 mode: 1, RS-485 mode: 1 or 1.

2. The first step after running the software is to automatically link (By last COM port setting) if the device responses correctly through RS-232, it will start application normally, otherwise the dialog will show up. You can click the "scan" button to get detail information. The information will help you choose the correct COM port and Device ID. After set the correct COM port and ID, you can select "Linkage" and click "Execute" button. When the MX-1004PF is correctly connected, you can close the Linkage dialog. If the serial connection is well established, you can see work main control console as below.
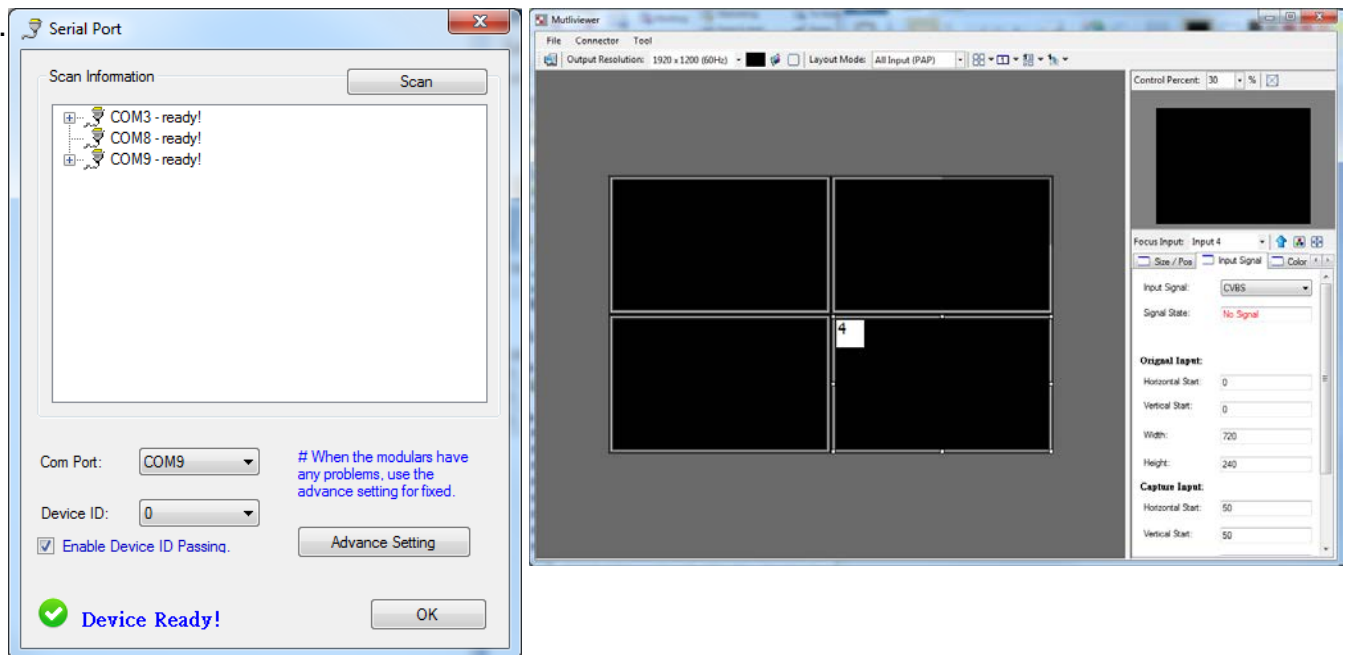
Definitions of Menu Buttons and Icons

The software has following menu options available:
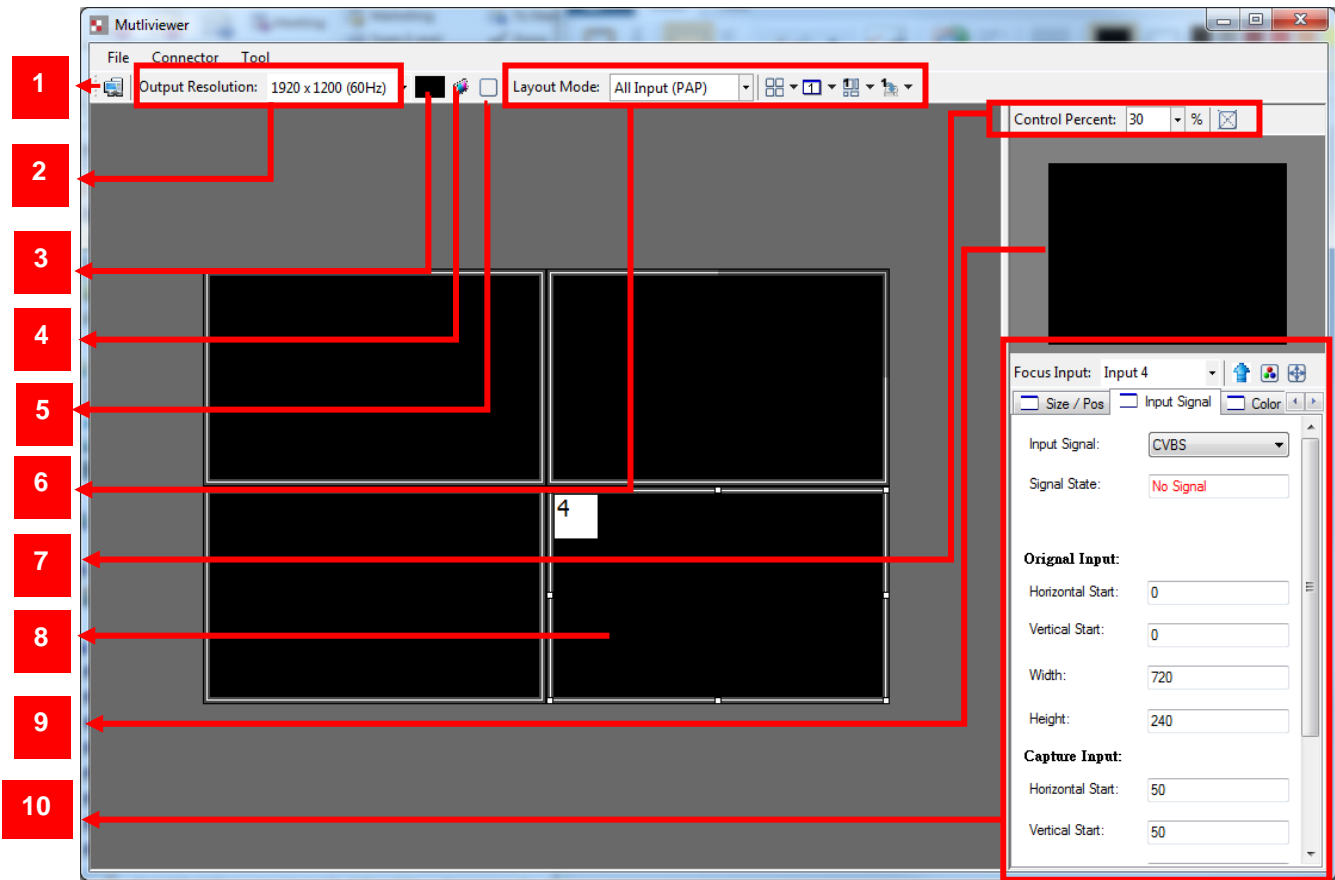
1 **Fast Linkage**

This button will update software GUI for device state

2 **Output Resolution**

Supported Mode	Resolution	Supported Mode	Resolution
HDTV 720p	1280x720 @ 60Hz	VESA	1280x768 @ 60Hz
HDTV 1080p	1920x1080 @ 60Hz	VESA	1366x768 @ 60Hz
VESA	800x600 @ 60Hz	VESA	1400x1050 @ 60Hz
VESA	1024x768 @ 60Hz	VESA	1600x1200 @ 60Hz
VESA	1280x1024 @ 60Hz	VESA	1920x1200 @ 60Hz

3 **Background Color**

Clicking on this button will show the color dialog for background color adjustment.

4 **Background Setting**

MX-1004PF offers the video background to make this advanced unit actually working like 5 channel video mixer! The default background video must work as full screen! Users can choose between color and video background through the following control window. Click on this button will show the dialog for output resolution, background color and background channel setting.
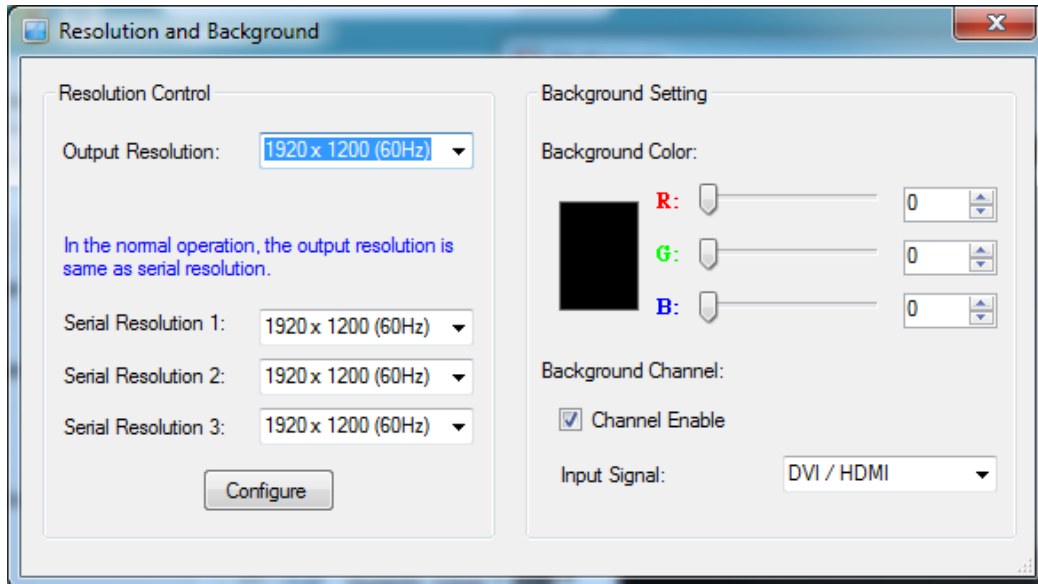
We recommend not changing Serial Resolutions.

Only INPUT 4 can be used as "Background Channel"

5 **Border Settings**

Allows you to enable Border and enter Custom Text for Labels each Input Source.
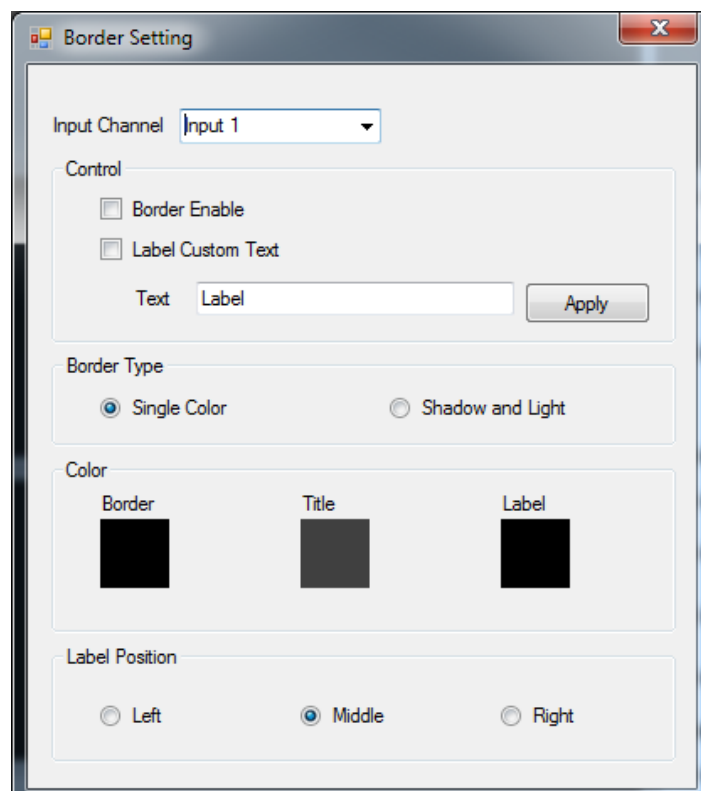
6 **Display / Layout Mode**

Set signal channel full screen or all channel Notice that the input sources will not be changed in Software.
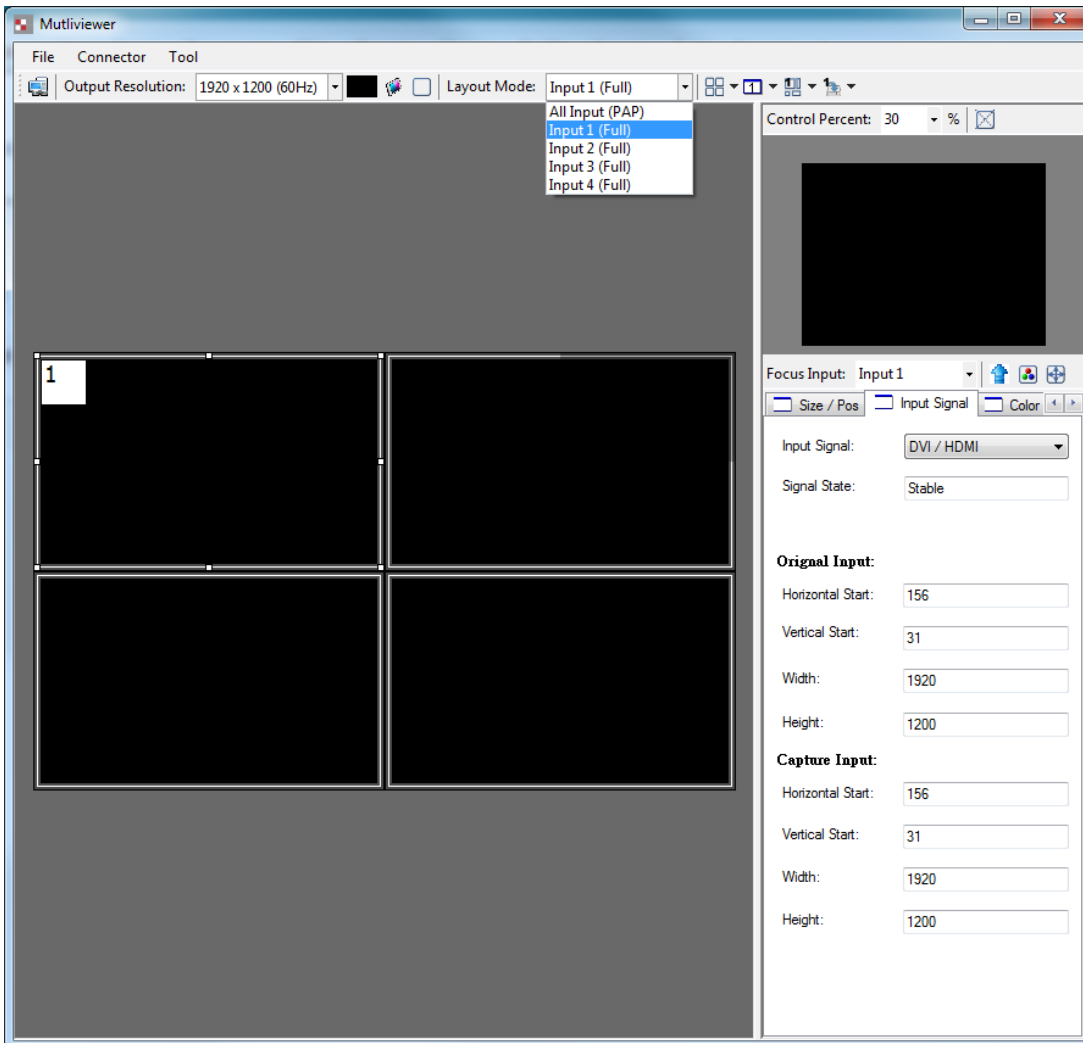
Default Layouts

There are 5 pre-configured layouts available from Control Software, IR Remote Control or Front Panel Buttons.

- Panel Cross
- Panel Right – Type
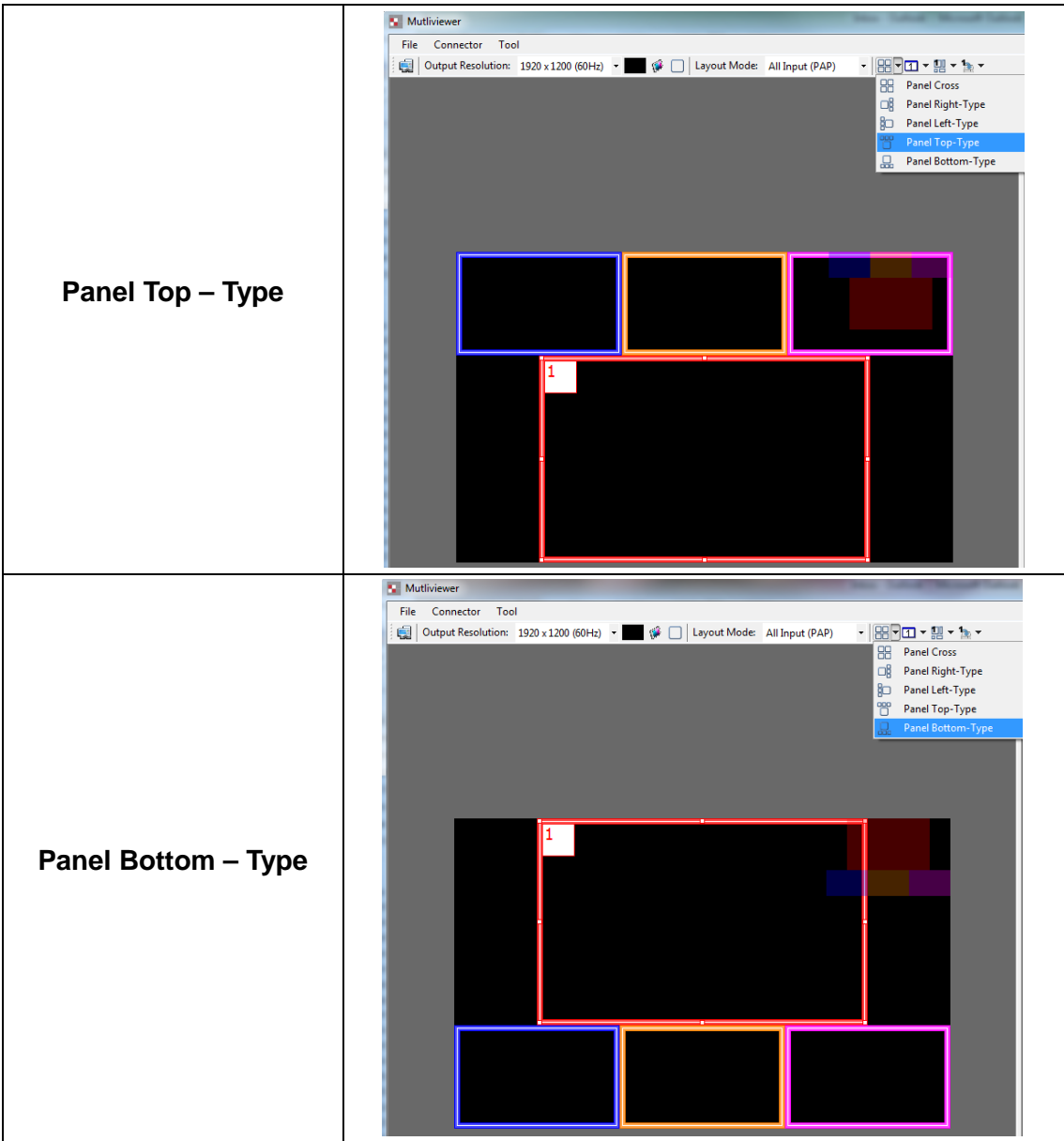- Panel Left – Type
- Panel Top – Type
- Panel Bottom - Type

Panel Cross	
Panel Right – Type	
Panel Left – Type	

Panel Top – Type	
Panel Bottom – Type	
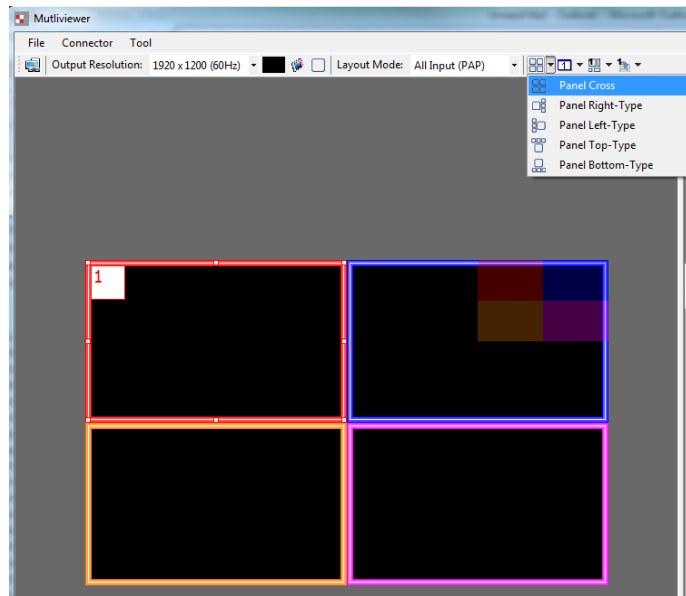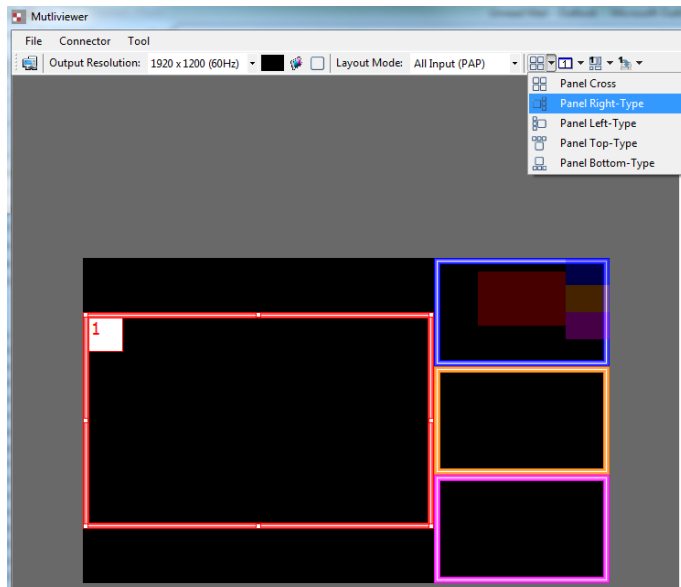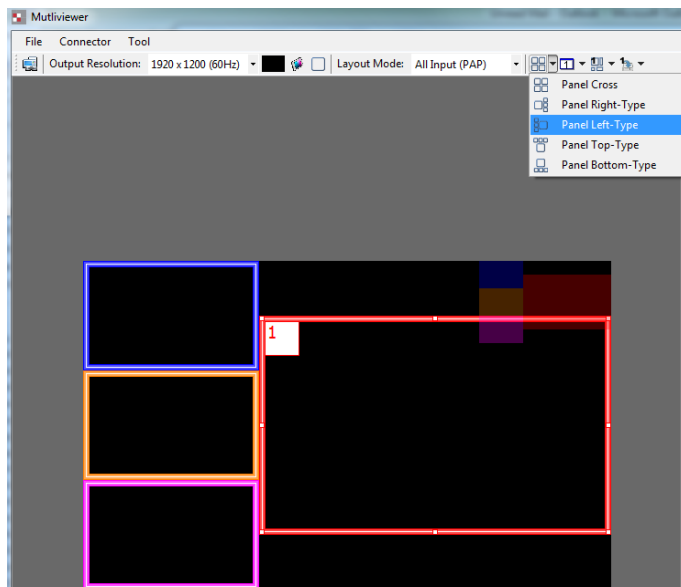
> ℹ️ *Input Signal which is selected at "Focus Input" will be displayed as Main Video Sources.*

Focus Input

Select which Input Source should stay in focus when "Layouts" are selected

Save and Set Custom Layouts

Save up to 8 Custom Layouts and Set them using Control Software, Front Panel or IR Remote Control.
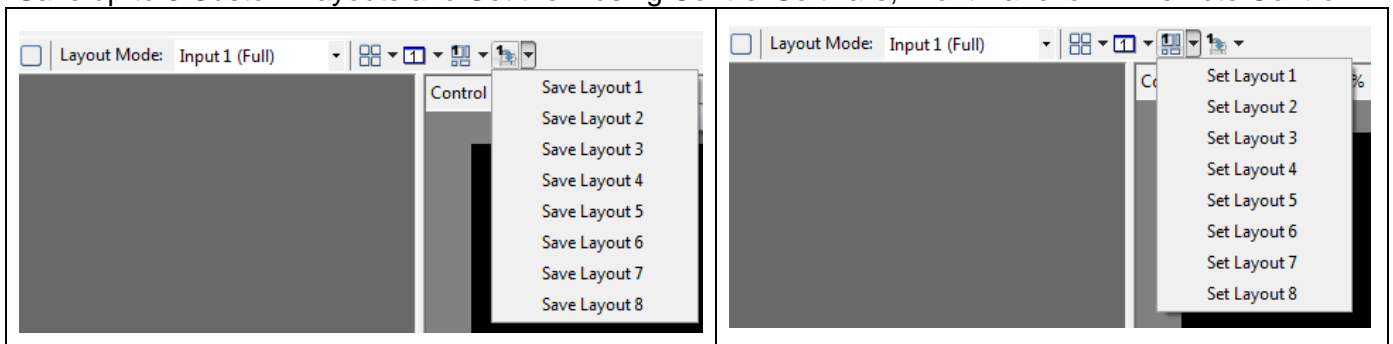
7   **Layout Control Size**

Set layout control size in Software by percent.
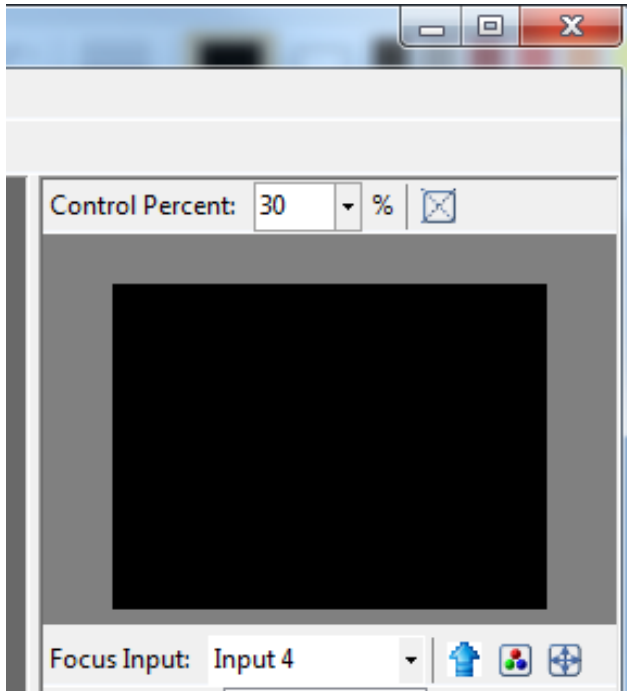
If you enable Fixed Stretch, Aspect Ratios are kept with each Input layout is changed.

8   **Layout Control**

Create different Layouts by Drag and Drop. You can use "Fixed Aspect Ratio" as described above to retain Aspect Ratio of source image.

9   **Preview Window**

Shows preview Window of Layouts

10   **Input Channel Selection and Customization**

In this section you can Select Input Channel, Input Signal, Channel Window Visible, Blend Settings, Custom Height, Custom Width, Color Brightness, Contrast, Saturation, Hue, Red, Green, Blue, Color Balance and Auto Configuration.
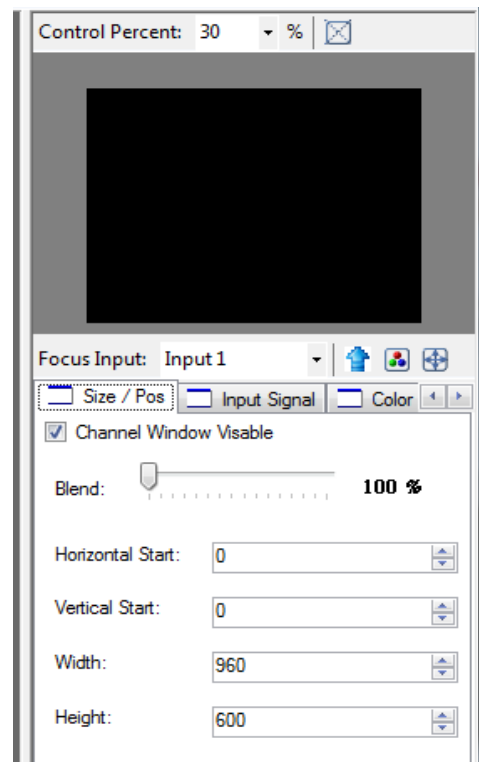
[Input Selection]

- Select "Focus Input" from drop down menu or by Clicking on Main Layout Window.
- Click on "Input Signal".
- Select Correct "Input Signal" from drop down menu.
- Once right Input Signal is selected, click on UP ARROW (Input Update) beside Focus Input to update it on system memory.
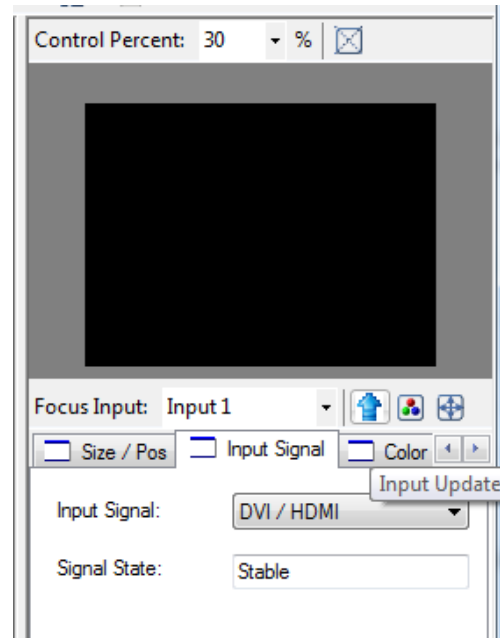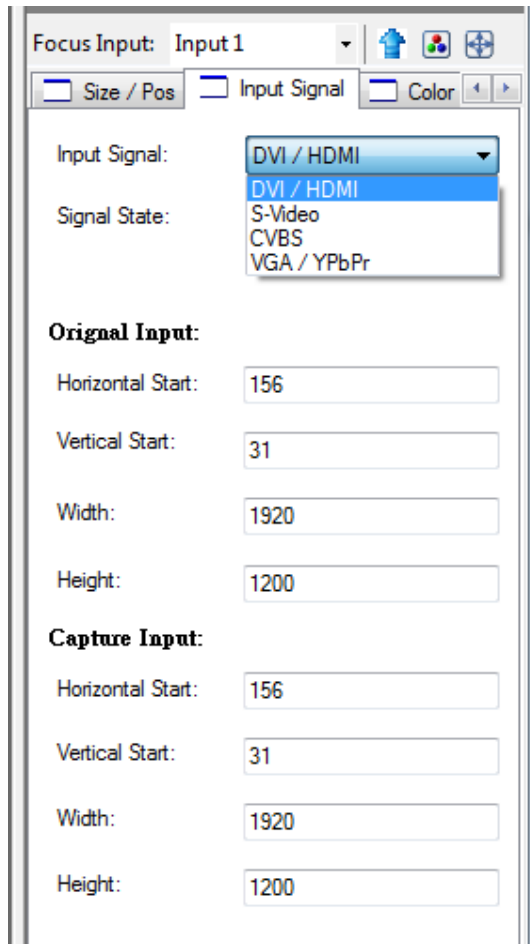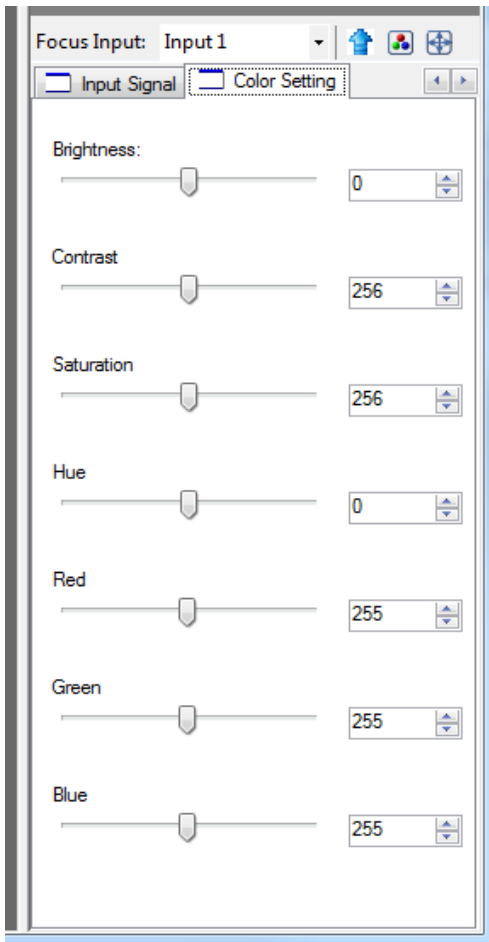
[Size and Position]

Select on "Size / Pos"

- **Channel Windows Visible:** You may uncheck "Channel Window Visible" if you decide to not show this Windows on screen

- **Blend:** Change the value of Blending from 100% to 0%. This will allow you to overlay an Input Source on other.

- **Custom Height and Width:** If you have specific requirement for Input Layout, you may adjust them here.
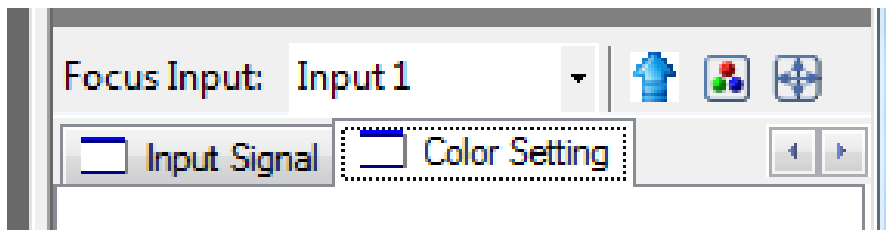
[Color Setting]

Various options to change Brightness, Contrast, Saturation, Hue, Red, Green and Blue are available on each "Input Source"

[Color Balance and Auto Configure]

You may adjust Color Balance and Auto Configure them by selecting these options


SOFTWARE CONFIGURATION

Follow these steps to select right Output Resolution and Input Signal

- Once RS232 communication is setup properly, you should select Optimal "OUTPUT Resolution" supported by your Display (TV or Monitor)
- Select correct "Input Signal" for each Input.
    - ➢ After Selecting right Input Signal, ensure to Click on "Input Update"
- Repeat above steps for each Input you have connected
- Select Layout Mode
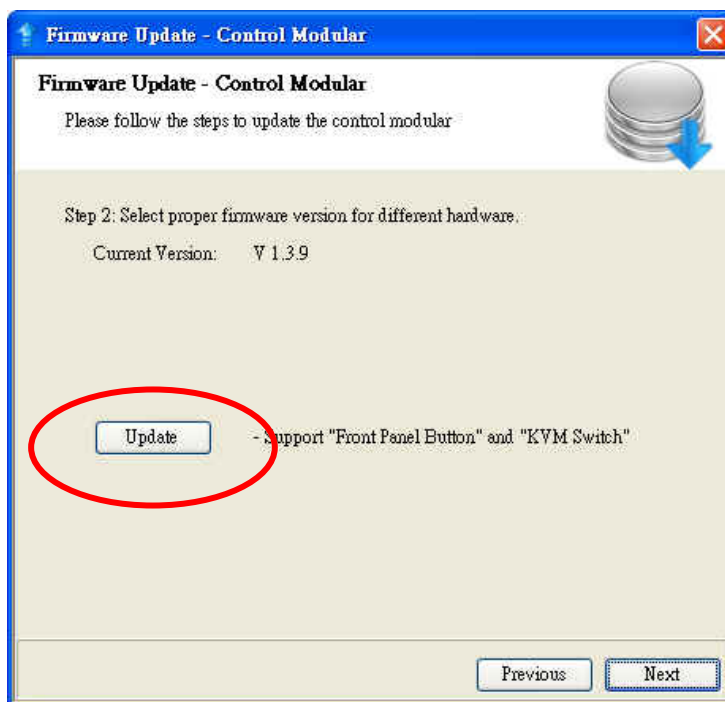- Select "Default Layouts" or create your own by dragging dropping

If your firmware is not newest, the control will display the dialog after link the device.
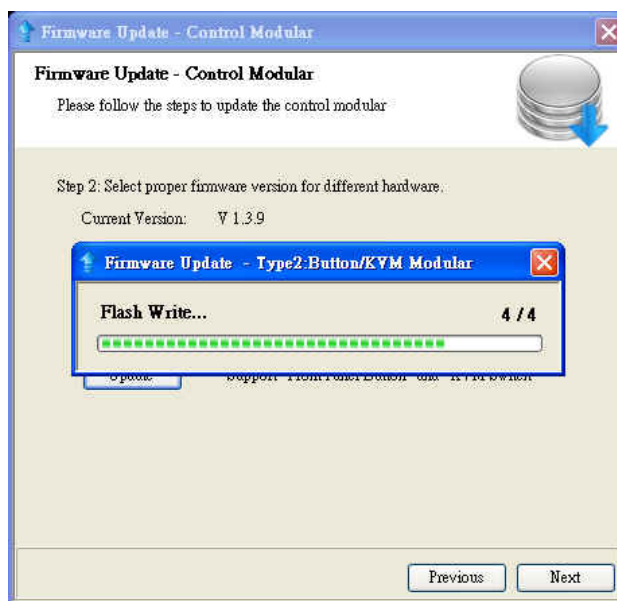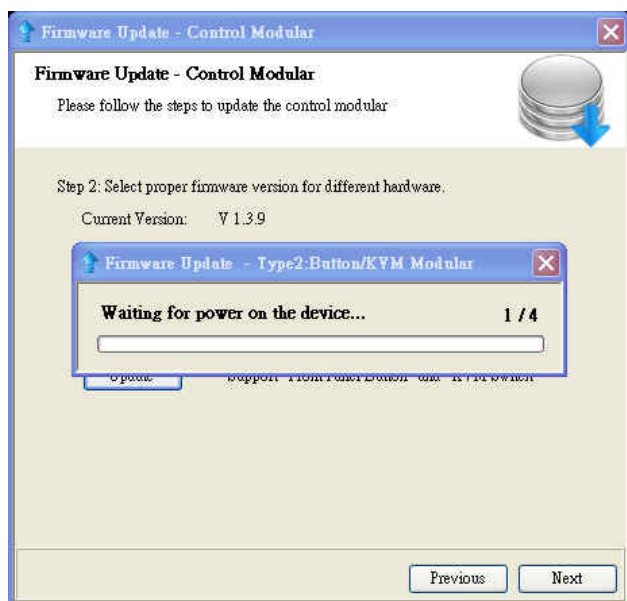Please "Execute" botton to firmware update
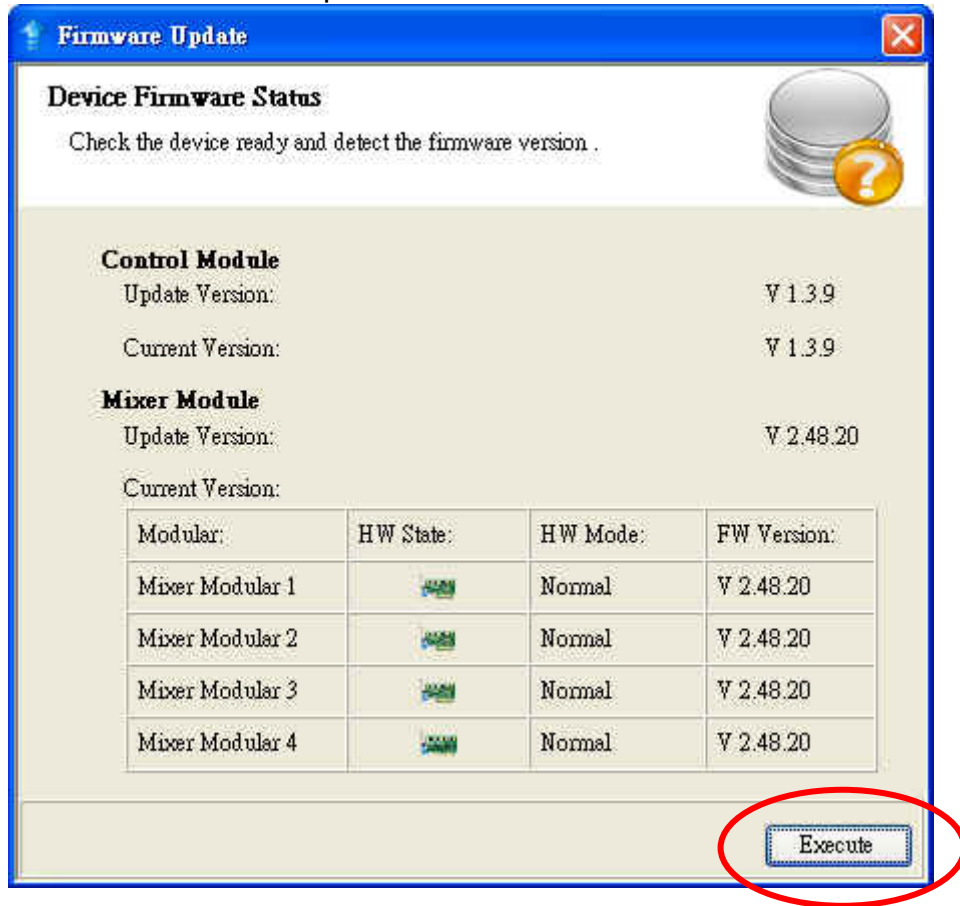
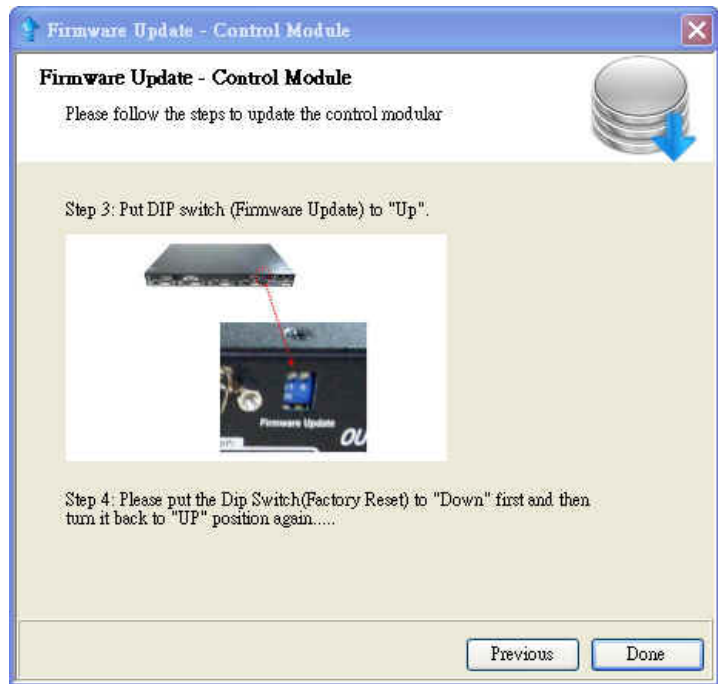Control Mdoule Update: Please follow the step to update the Control Module
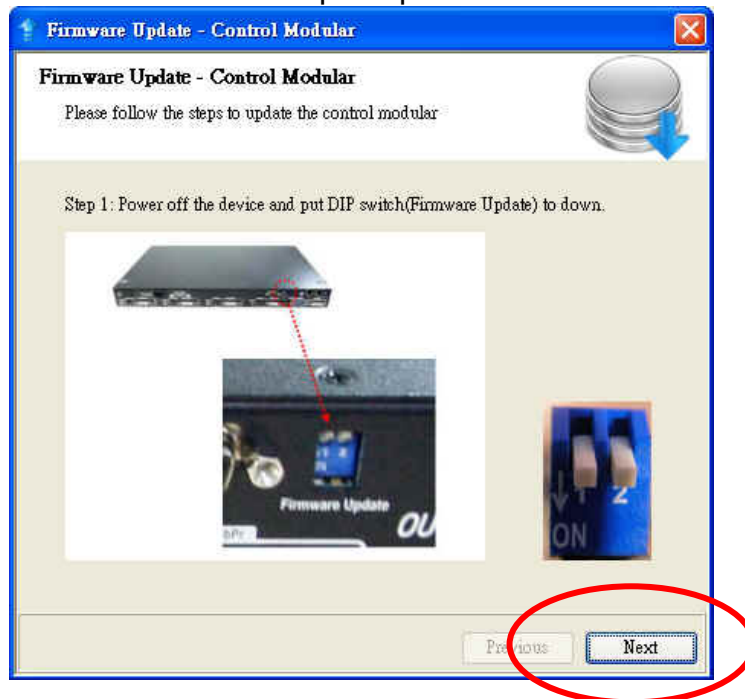
Please click the "Update" button to update Contorl Module
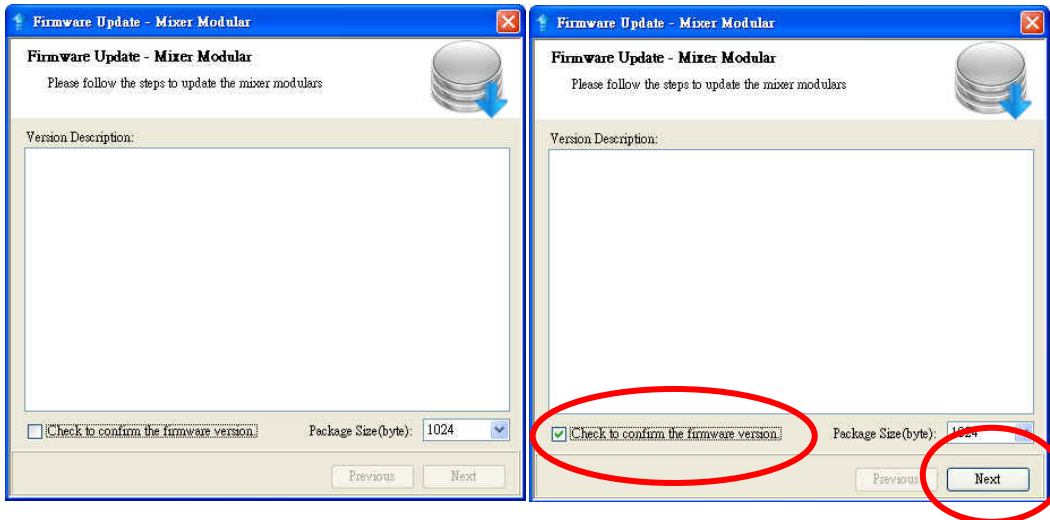

The process bar will run after the device power cycle.If it is not working, please check the DIP switch is correct(In the step 1)

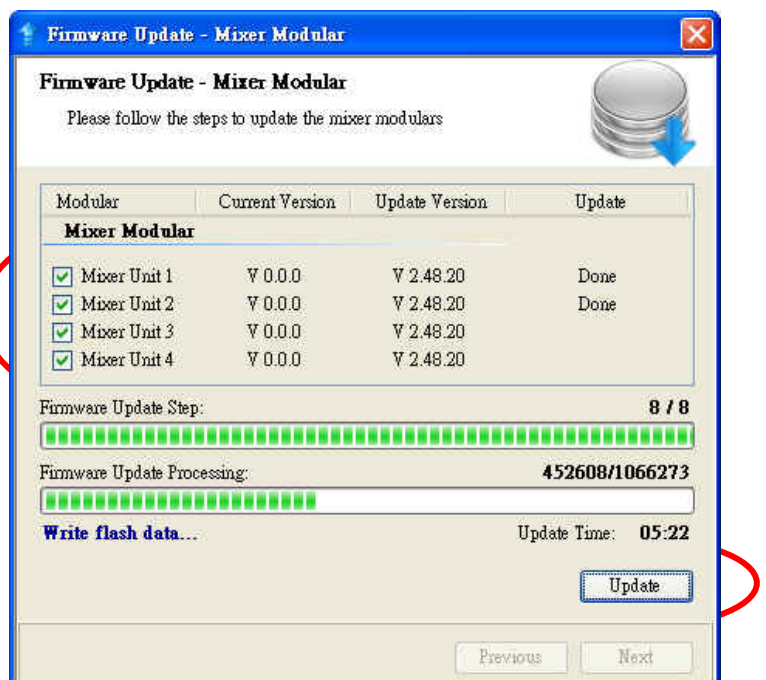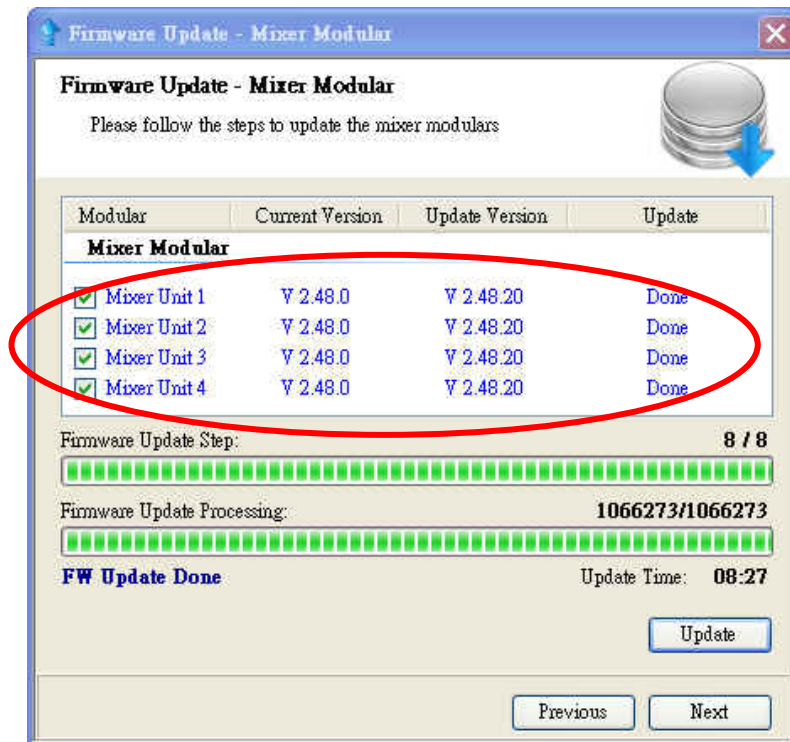Please make sure the DIP Switch is feedback to right state.

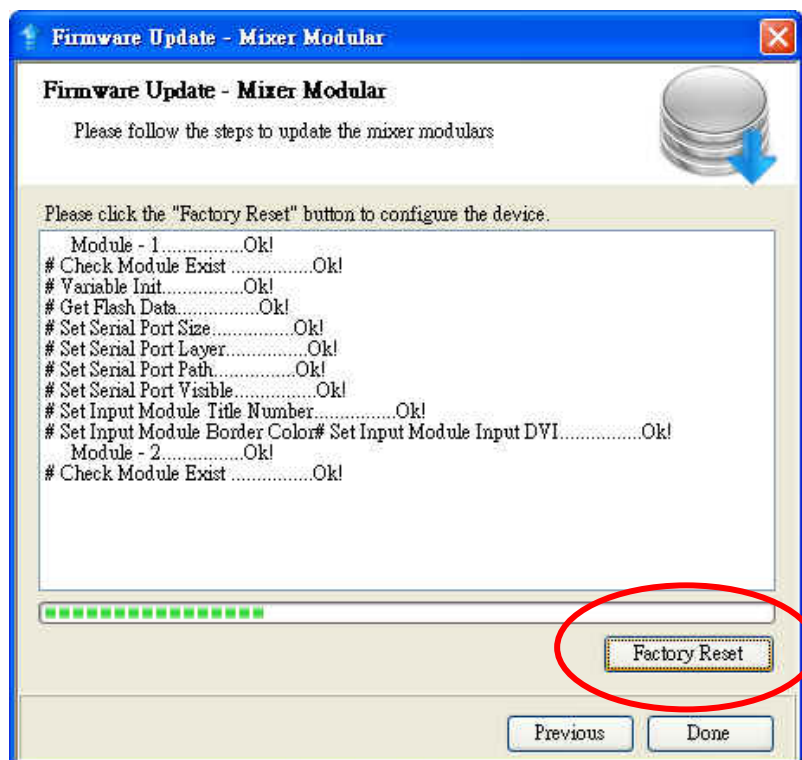Please check the check box than click the "Next" button to update Mixer Module

Select the modules that you want update mixer units, than click "Update" button to update Mixer Module.

When the update is finish, please check the update state is "Done". Click the "Next" button

Click "Factory Reset" to configure the device to correct state.

Problem	Recommendations
No power	✓ Check if you correctly and firmly plug AC power core into MX-1004PF ✓ If you are recovering from power outage, accidentally unplug the power core or other power surge conditions, leave the device off for a while and then power it on again.
No/ Erratic video	✓ Make sure all cables are in good working condition and properly connected to the MX-1004PF and displays. ✓ Configure the output video resolution so that it doesn't excess the native resolution of the display. (in this case, the message of "out of range" is usually showed on your screen) ✓ Make sure video sources are accurately selected to the right channels.
Poor quality	✓ We suggest that don't use T-connectors to split your video source into to images displayed on two different screens. That will lower output video quality. Use a distribution amplifier instead of T-connectors. ✓ Make sure the video source is not compressed and maintains the highest native resolution.
Wrong color	✓ Use color balance or auto configuration . ⓘ Auto color configuration only works at VGA and component inputs.
No Video after Factory Hardware and Software Reset	✓ Always perform a hard power reset from the back of the unit using the power switch on back right. ✓ In the configuration software after the factory reset navigate to: ➢ Advance setting button ➢ Ensure the correct COM Port is enabled ➢ Wait until Green check mark and Device Ready! is complete ➢ Proceed to "Device Setting/Testing" "Execute Selector" ➢ Select "Modular Configure" then Press Execute Button

LIMITED WARRANTY

The SELLER warrants the **MX-1004PF Professional Quad-View Video Processor** to be free from defects in the material and workmanship for 1 year from the date of purchase from the SELLER or an authorized dealer. Should this product fail to be in good working order within 1 year warranty period, The SELLER, at its option, repair or replace the unit, provided that the unit has not been subjected to accident, disaster, abuse or any unauthorized modifications including static discharge and power surges.

Unit that fails under conditions other than those covered will be repaired at the current price of parts and labor in effect at the time of repair. Such repairs are warranted for 90 days from the day of reshipment to the BUYER. If the unit is delivered by mail, customers agree to insure the unit or assume the risk of loss or damage in transit. Under no circumstances will a unit be accepted without a return authorization number.

The warranty is in lieu of all other warranties expressed or implied, including without limitations, any other implied warranty or fitness or merchantability for any particular purpose, all of which are expressly disclaimed.

Proof of sale may be required in order to claim warranty. Customers outside Taiwan are responsible for shipping charges to and from the SELLER. Cables are limited to a 30 day warranty and cable must be free from any markings, scratches, and neatly coiled.

The content of this manual has been carefully checked and is believed to be accurate. However, The SELLER assumes no responsibility for any inaccuracies that may be contained in this manual. The SELLER will NOT be liable for direct, indirect, incidental, special, or consequential damages resulting from any defect or omission in this manual, even if advised of the possibility of such damages. **Also, the technical information contained herein regarding the MX-1004PF features and specifications is subject to change without further notice.**

[DVI-x / YPbPr-x / VGA-x (x = 1~4)] Socket

Supported Mode	Resolution	Supported Mode	Resolution
NTSC/480i/525i	720x240 @60Hz	VESA	800x600 @75Hz
PAL/576i/625i	720x288 @50Hz	VESA	800x600 @85Hz
480p/525p	720x483 @60Hz	MAC	832x624 @75Hz
480p (16:9)	960x483 @60Hz	VESA	1024x768 @60Hz
576p/625p	720x756 @50Hz	MAC	1024x768 @60Hz
(HDTV) 720p	1280x720 @50Hz	VESA	1024x768 @70Hz
(HDTV) 720p	1280x720 @60Hz	IBM	1024x768 @72Hz
(HDTV) 1080i	1920x1080 @50Hz	VESA	1024x768 @75Hz
(HDTV) 1080i	1920x1080 @60Hz	MAC	1024x768 @75Hz
(HDTV) 1080p	1920x1080 @30Hz	VESA	1024x768 @85Hz
VESA	720x400 @85Hz	VESA	1152x864 @75Hz
VESA	640x350 @85Hz	MAC	1152x870 @75Hz
VESA	640x400 @85Hz	SUN	1152x900 @66Hz
IBM	720x400 @70Hz	SUN	1152x900 @76Hz
IBM	720x350 @70Hz	VESA	1280x960 @60Hz
IBM	640x350 @70Hz	VESA	1280x960 @85Hz
IBM	640x400 @70Hz	VESA	1280x1024 @60Hz
VESA	640x480 @60Hz	HP	1280x1024 @60Hz
MAC	640x480 @67Hz	IBM	1280x1024 @67Hz
VESA	640x480 @72Hz	HP	1280x1024 @72Hz
VESA	640x480 @75Hz	VESA	1280x1024 @75Hz
VESA	640x480 @85Hz	SUN	1280x1024 @76Hz
VESA	800x600 @56Hz	VESA	1600x1200 @60Hz
VESA	800x600 @60Hz	VESA	1920x1200 @60Hz
VESA	800x600 @72Hz		

[DVI-OUT] socket

Supported Mode	Resolution	Supported Mode	Resolution
(HDTV) 720p	1280x720 @50Hz	VESA	1366x768 @60Hz
(HDTV) 720p	1280x720 @60Hz	VESA	1400x1050 @60Hz
(HDTV) 1080p	1920x1080 @60Hz	VESA	1400x1050 @50Hz
VESA	640x480 @60Hz	VESA	1152x864 @75Hz
VESA	800x600 @60Hz	VESA	1600x1200 @60Hz
VESA	1024x768 @60Hz	VESA	1920x1200 @50Hz
VESA	1152x864 @75Hz	VESA	1920x1200 @60Hz
VESA	1280x1024 @60Hz		